State of California
California Regional Water Quality Control Board, Los Angeles Region

RESOLUTION NO. R05-006
June 2, 2005

Amendment to the *Water Quality Control Plan for the Los Angeles Region* to Incorporate a Total Maximum Daily Load for Metals for the Los Angeles River and its Tributaries

WHEREAS, the California Regional Water Quality Control Board, Los Angeles Region, finds that:

1. The Federal Clean Water Act (CWA) requires the California Regional Water Quality Control Board, Los Angles Region (Regional Board) to develop water quality objectives, which are sufficient to protect beneficial uses for each water body found within its region. Water bodies that do not meet water quality objectives or support beneficial uses are considered impaired.

2. A consent decree between the U.S. Environmental Protection Agency (USEPA), Heal the Bay, Inc. and BayKeeper, Inc. was approved on March 22, 1999. This court order directs the USEPA to complete Total Maximum Daily Loads (TMDLs) for all impaired waters within 13 years. A schedule was established in the consent decree for the completion of the first 29 TMDLs within 7 years, including completion of a TMDL to reduce metals in the Los Angeles River and its tributaries by USEPA by March 22, 2005. The remaining TMDLs will be scheduled by Regional Board staff within the 13-year period.

3. USEPA and the consent decree plaintiffs agreed to extend the completion deadline for the Los Angeles River Metals TMDL to December 22, 2005, in order to enable the State to complete its adoption process and USEPA to approve the State-adopted TMDL.

4. The elements of a TMDL are described in 40 CFR 130.2 and 130.7 and section 303(d) of the CWA, as well as in USEPA guidance documents (Report No. EPA/440/4-91/001). A TMDL is defined as the sum of the individual waste load allocations for point sources, load allocations for nonpoint sources and natural background (40 CFR 130.2). Regulations further stipulate that TMDLs must be set at levels necessary to attain and maintain the applicable narrative and numeric water quality standards with seasonal variations and a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality (40 CFR 130.7(c)(1)). The regulations in 40 CFR 130.7 also state that TMDLs shall take into account critical conditions for stream flow, loading and water quality parameters.

5. The numeric targets in this TMDL are not water quality objectives and do not create new bases for enforcement against dischargers apart from the existing, numeric water quality standards they translate. The targets merely establish the bases through which load allocations (LAs) and waste load allocations (WLAs) are calculated. WLAs are only enforced for a discharger's own discharges, and then only in the context of its National Pollutant Discharge Elimination System (NPDES) permit, which must contain effluent limits consistent with the assumptions and requirements of the WLA. (40 C.F.R. 122.44(d)(vii)(B).) The Regional

Board will develop permit requirements through subsequent permit actions that will allow all interested persons, including but not limited to municipal storm water dischargers, to provide comments on how the WLA will be translated into permit requirements.

6. As envisioned by Water Code section 13242, the TMDL contains a "description of surveillance to be undertaken to determine compliance with objectives." The Compliance Monitoring and Special Studies elements of the TMDL recognize that monitoring will be necessary to assess the on-going condition of the Los Angeles River and its tributaries and to assess the on-going effectiveness of efforts by dischargers to reduce metals loading to the Los Angeles River. Special studies may also be appropriate to provide further information about new data, new or alternative sources, and revised scientific assumptions. The TMDL does not establish the requirements for these monitoring programs or reports, although it does recognize the type of information that will be necessary to secure. The Regional Board's Executive Officer will issue orders to appropriate entities to develop and to submit monitoring programs and technical reports. The Executive Officer will determine the scope of these programs and reports, taking into account any legal requirements, and issue the orders to the appropriate entities.

7. Upon establishment of TMDLs by the State or USEPA, the State is required to incorporate the TMDLs along with appropriate implementation measures into the State Water Quality Management Plan (40 CFR 130.6(c)(1), 130.7). This Water Quality Control Plan for the Los Angeles Region (Basin Plan), and applicable statewide plans, serves as the State Water Quality Management Plans governing the watersheds under the jurisdiction of the Regional Board. Attachment A to this resolution contains the Basin Planning language for this TMDL.

8. The Los Angeles River flows for 55 miles from the Santa Monica Mountains at the western end of the San Fernando Valley to Queensway Bay located between the Port of Long Beach and the City of Long Beach. The Los Angeles River drains a watershed with an area of 834 square miles. The proposed TMDL addresses impairments of water quality caused by metals in several reaches and tributaries of the Los Angeles River.

9. On May 18, 2000, the U.S. EPA promulgated numeric criteria for priority pollutants for the State of California, known as the California Toxics Rule (CTR), codified as 40 CFR section 131.38. Federal water quality standards under section 303 of the Clean Water Act consist of designated uses and criteria to protect those uses. (40 C.F.R. 131.3(i).) Designated uses are beneficial uses under state law, and criteria are water quality objectives under state law. The CTR establishes the numeric water quality objectives for various toxic pollutants. These objectives apply "without exeception" to all inland surface waters within the State of California, including the Los Angeles region. (40 C.F.R. 131.38(d)(1)-(2).)

10. "[I]t is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." (33 U.S.C. 1251(a)(3).) Water quality standards, including the CTR, reflect this express national policy of Congress. When a pollutant is present at levels in excess of the CTR numbers, then the pollutant is present in toxic amounts. In this sense, the numeric objectives in the CTR are U.S. EPA's determination of when priority pollutants are present at toxic amounts in contravention of Congress's national policy.

11. The Regional Board's goal in establishing the Los Angeles River and Tributaries Metals TMDL is to protect the aquatic life and wildlife beneficial uses of Los Angeles River and its tributaries and to achieve the numeric water quality objectives set to protect these uses as contained in the CTR.

12. Regional Board staff have prepared a detailed technical document that analyzes and describes the specific necessity and rationale for the development of this TMDL. The technical document entitled "Total Maximum Daily Load for Metals - Los Angeles River and Tributaries" is an integral part of this Regional Board action and was reviewed, considered, and accepted by the Regional Board before acting. Further, the technical document provides the detailed factual basis and analysis supporting the problem statement, numeric targets (interpretation of the narrative and numeric water quality objectives, used to calculate the pollutant allocations), source analysis, linkage analysis, waste load allocations (for point sources), load allocation (for nonpoint sources), margin of safety, and seasonal variations and critical conditions of this TMDL.

13. On June 2, 2004, prior to the Board's action on this resolution, public hearings were conducted on the Los Angeles River and Tributaries Metals TMDL. Notice of the hearings were sent to all known interested persons and published in the Los Angeles Times on March 27, 2005 in accordance with the requirements of Water Code Section 13244.

14. The public has had reasonable opportunity to participate in review of the amendment to the Basin Plan. A draft of the Los Angeles River and Tributaries Metals TMDL was originally released for public comment on July 12, 2004. The Regional Board held a workshop to receive testimony on the proposed TMDL on September 2, 2004. Regional Board staff responded to oral and written comments received from the public on the first draft and released a revised draft TMDL for public comment on March 28, 2005. A Notice of Hearing and Notice of Filing were published and circulated 45 days preceding Board action, and Regional Board staff responded to oral and written comments received from the public on the revised draft.

15. In amending the Basin Plan, the Regional Board considered the requirements set forth in Sections 13240 and 13242 of the California Water Code.

16. Because the TMDL implements existing numeric water quality objectives (i.e., the numeric water quality criteria established by USEPA in the CTR), the Regional Board has consistently maintained (along with the State Water Resources Control Board) that adopting a TMDL does not require the water boards to consider the factors of Water Code section 13241. The consideration of the Water Code section 13241 factors, by section 13241's express terms, only applies "in establishing water quality objectives." Here the Regional Board is not establishing water quality objectives, but as required by section 303(d)(1)(C) of the Clean Water Act is adopting a TMDL that will implement the previously established objectives that have not been achieved.

17. While the Regional Board is not required to consider the factors of Water Code section 13241, it, nonetheless, has developed and received significant information pertaining to the Water Code section 13241 factors and considered that information in developing and adopting this TMDL. The past, present, and probable future beneficial uses of water have been considered in that the Los Angeles River is designated for a multitude of beneficial uses in the Basin Plan. Various living organisms (including vegetation, fish, invertebrates, and wildlife) are present in, transient through, and will be present in the Los Angeles River. The fact that some flows are intermittent or, as characterized by some commenters "effluent dominated" or "nuisance flows," does not diminish this fact. The environmental characteristics of the Los Angeles River are spelled out at length in the Basin Plan and in the technical documents supporting this Basin Plan amendment, and have been considered in

developing this TMDL. Water quality conditions that reasonably could be achieved through the coordinated control of all factors which affect water quality in the area have been considered via the discussion of likely means of compliance, and studies indicating that a mix of best management practices (BMPs), rather than advanced treatment plants, would achieve the water quality criteria established in the CTR. Authorizing certain storm water dischargers to rely on BMPs in the first instances reflects the reasonableness of the action in terms of the ability to implement the requirements, as well as a belief that the water quality conditions can reasonably be achieved in any event. Establishing a plan that will ensure the Los Angeles River is not toxic is a reasonable water quality condition. However, to the extent that there would be any conflict between the consideration of the factor in Water Code section 13241 subdivision (c), if the consideration were required, and the Clean Water Act, the Clean Water Act would prevail. Notably, national policy established by Congress prohibits the discharge of toxic pollutants in toxic amounts. Economic considerations were considered throughout the development of the TMDL. Some of these economic considerations arise in the context of Public Resources Code section 21159 and are equally applicable here. The TMDL maps out a two-decade approach to implementing national policy prohibiting toxic pollutants in toxic amounts. This implementation program recognizes the economic limitations on achieving immediate compliance—especially for municipal storm water dischargers. The TMDL also authorizes the use of BMPs, to the extent authorized by law, for various storm water dischargers. Again, these recognize the economic limitations on certain storm water dischargers, while remaining faithful to the requirement to implement existing water quality standards and national policy. As part of this economic consideration, the Regional Board considered several studies pertaining to storm water (some submitted by dischargers showing costs as high as several hundred billion to implement all water quality standards in the Basin Plan through advanced treatment plants and some developed by the State Water Resources Control Board and Regional Board through economic studies prepared by professors at the University of Southern California, the University of California at Los Angeles, California State University at Sacramento showing costs of several billion dollars to implement all water quality standards in the Basin Plan using a mix of BMPs). The former studies consist of worst-case assumptions and these studies' high-end figures assume the widespread construction of treatment facilities. Based on existing policy geared toward BMPs and the latter studies, these assumptions are unrealistic. While section 13241 of the Water Code does not require a balancing of the costs and benefits, the latter studies also conclude that any costs would be outweighed by the societal and economic benefits to Los Angeles' coastal economy. Again, these "economic considerations" were all considered and are reflected in an implementation program that is flexible and allows two decades to comply with the final WLAs. The need for housing within the region has been considered, but this TMDL is unlikely to affect housing needs. Whatever housing impacts could materialize are ameliorated by the flexible nature of this TMDL and the two-decade implementation period. Finally, the TMDL is likely to facilitate the use of recycled water, as demonstrated by the City of Los Angeles' Integrated Resources Plan.

18. The amendment is consistent with the State Antidegradation Policy (State Board Resolution No. 68-16), in that it does not authorize any lowering of water quality and is designed to implement existing water quality objectives. Likewise, the amendment is consistent with the federal Antidegradation Policy (40 CFR 131.12).

19. Pursuant to Public Resources Code section 21080.5, the Resources Agency has approved the Regional Water Boards' basin planning process as a "certified regulatory program" that adequately satisfies the California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.) requirements for preparing environmental documents. (14 Cal.

Code Regs. § 15251(g); 23 Cal. Code Regs. § 3782.) As such, the Regional Water Board's basin planning documents together with an Environmental Checklist, are the "substitute documents" that contain the required environmental documentation under CEQA. (23 Cal Code Regs. § 3777.) The detailed technical report entitled "Total Maximum Daily Load for Metals - Los Angeles River and Tributaries," responses prepared by staff to address comments raised during the development of the TMDL, this resolution, and the Environmental Checklist serve as the substitute documents for this project. The project itself is the establishment of a TMDL for toxic metals in the Los Angeles River and its tributaries. While the Regional Board has no discretion to not establish a TMDL (the TMDL is required by federal law) or for determining the water quality standard to be applied (the CTR establishes the numeric water quality objectives that must be implemented), the Board does exercise discretion in assigning waste load allocations and load allocations, determining the program of implementation, and setting various milestones in achieving the numeric water quality standards established in the CTR.

20. A CEQA Scoping hearing was conducted on April 23, 2004 at the Los Angeles Regional Water Quality Control Board, 320 W. 4th Street, Los Angeles, CA 90013. A notice of the CEQA Scoping hearing was sent to interested parties including cities and/or counties with jurisdiction in or bordering the Los Angeles River watershed.

21. The lengthy implementation period allowed by the TMDL, will allow many compliance approaches to be pursued. In preparing the accompanying CEQA substitute documents, the Regional Board has considered the requirements of Public Resources Code section 21159 and California Code of Regulations, title 14, section 15187, and intends the substitute documents to serve as a tier 1 environmental review. Nearly all of the compliance obligations will be undertaken by public agencies that will have their own obligations under CEQA. Project level impacts will need to be considered in any subsequent environmental analysis performed by other public agencies, pursuant to Public Resources Code section 21159.2. If not properly mitigated at the project level, there could be adverse environmental impacts. The substitute documents for this TMDL, and in particular the Environmental Checklist and staff's responses to comments, identify broad mitigation approaches that should be considered at the project level. Consistent with CEQA, the substitute documents do not engage in speculation or conjecture and only consider the reasonably foreseeable environmental impacts of the methods of compliance, the reasonably foreseeable feasible mitigation measures, and the reasonably foreseeable alternative means of compliance, which would avoid or eliminate the identified impacts.

22. The proposed amendment could have a significant adverse effect on the environment. However, there are feasible alternatives, feasible mitigation measures, or both that would substantially lessen any significant adverse impact. The public agencies responsible for those parts of the project can and should incorporate such alternatives and mitigation into any subsequent projects or project approvals. Possible alternatives and mitigation are described in the CEQA substitute documents, specifically the TMDL technical report and the Environmental Checklist. To the extent the alternatives, mitigation measures, or both are not deemed feasible by those agencies, the necessity of implementing the federally required metals TMDL and removing the metals-related toxicity impairment from the Los Angeles River (an action required to achieve the express, national policy of the Clean Water Act) outweigh the unavoidable adverse environmental effects.

23. Health and Safety Code section 57004 requires external scientific peer review for certain water quality control policies. Prior to public notice of the draft TMDL, the Regional Board

submitted the scientific basis and scientific portions of the Los Angeles River Metals TMDL to the University of California for external scientific peer review. A written peer review report was received by the Regional Board. Minor modifications were made to the scientific portions of the TMDL to address concerns identified during the peer review process.

24. The regulatory action meets the "Necessity" standard of the Administrative Procedures Act, Government Code, Section 11353, Subdivision (b). As specified above, federal regulations require that TMDLs be incorporated into the water quality management plan. The Regional Board's Basin Plan is the Regional Board's component of the water quality management plan, and the Basin Plan is how the Regional Board takes quasi-legislative, planning actions. Moreover, the TMDL is a program of implementation for existing water quality objectives, and is, therefore, appropriately a component of the Basin Plan under Water Code section 13242. The necessity of developing a TMDL is established in the TMDL staff report, the section 303(d) list, and the data contained in the administrative record documenting the metals impairments of the Los Angeles River and its tributaries.

25. The Basin Plan amendment incorporating a TMDL for metals for the Los Angeles River and Tributaries must be submitted for review and approval by the State Water Resources Control Board (State Board), the State Office of Administrative Law (OAL), and the USEPA. The Basin Plan amendment will become effective upon approval by USEPA. A Notice of Decision will be filed with the Resources Agency.

26. The Regional Board has previously endorsed integrated water resources approaches to addressing Municipal Separate Storm Sewer System (MS4) implementation of TMDLs. The Regional Board believes integrated approaches require additional time for planning and development and are suitable for the 22-year implementation period discussed in this TMDL. As presently proposed, the TMDL implementation program does not distinguish between integrated and nonintegrated approaches. Further consideration of an implementation schedule incorporating and establishing incentives for an integrated water resources approach, similar to the Santa Monica Bay Beaches Bacteria TMDL, is appropriate.

THEREFORE, be it resolved that pursuant to sections 13240 and 13242 of the Water Code, the Regional Board hereby amends the Basin Plan as follows:

1. Pursuant to Sections 13240 and 13242 of the California Water Code, the Regional Board, after considering the entire record, including oral testimony at the hearing, hereby adopts the amendments to Chapter 7 of the Water Quality Control Plan for the Los Angeles Region, as set forth in Attachment A hereto, to incorporate the elements of the Los Angeles River and Tributaries Metals TMDL.

2. The Executive Officer is directed to forward copies of the Basin Plan amendment to the State Board in accordance with the requirements of section 13245 of the California Water Code.

3. The Regional Board requests that the State Board approve the Basin Plan amendment in accordance with the requirements of sections 13245 and 13246 of the California Water Code and forward it to OAL and the USEPA.

4. If during its approval process Regional Board staff, the State Board or OAL determines that minor, non-substantive corrections to the language of the amendment are needed for clarity or

consistency, the Executive Officer may make such changes, and shall inform the Board of any such changes.

5. The Executive Officer is authorized to sign a Certificate of Fee Exemption.

6. Regional Board staff are directed to explore and to propose revisions to the TMDL implementation schedule that incorporate an integrated water resources approach, similar to the implementation program in the Santa Monica Bay Beaches Bacteria TMDL. The Regional Board will consider any revisions proposed by staff, but is not committing to any particular course of action.

I, Jonathan Bishop, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Los Angeles Region, on June 2, 2005.

Jonathan Bishop
Executive Officer

6/17/05
Date

Amendment to the Water Quality Control Plan – Los Angeles Region to incorporate the Los Angeles River and Tributaries Metals TMDL

Adopted by the California Regional Water Quality Control Board, Los Angeles Region on June 2, 2005.

Amendments:

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Chapter 7. Total Maximum Daily Loads (TMDLs) Summaries, Section 7-13 (Los Angeles River and Tributaries Metals TMDL)
Add:

This TMDL was adopted by

The Regional Water Quality Control Board on June 2, 2005.

This TMDL was approved by:

The State Water Resources Control Board on [Insert Date].
The Office of Administrative Law on [Insert Date].
The U.S. Environmental Protection Agency on [Insert Date].

The following table includes the key elements of this TMDL.

Table 7-13.1 Los Angeles River and Tributaries Metals TMDL: Elements

Element	Key Findings and Regulatory Provisions
Problem Statement	Segments of the Los Angeles River and its tributaries are on the Clean Water Act section 303(d) list of impaired waterbodies for copper, cadmium, lead, zinc, aluminum and selenium. The metals subject to this TMDL are toxic pollutants, and the existing water quality objectives for the metals reflect national policy that the discharge of toxic pollutants in toxic amounts be prohibited. When one of the metals subject to this TMDL is present at levels exceeding the existing numeric objectives, then the receiving water is toxic. The beneficial uses impaired by metals in the Los Angeles River and its tributaries are those associated with aquatic life and water supply, including wildlife habitat, rare, threatened or endangered species, warm freshwater habitat, wetlands, and groundwater recharge. TMDLs are developed for reaches on the 303(d) list and for reaches where recent data indicate additional impairments. Addressing the impairing metals throughout the Los Angeles River watershed will ensure that the metals do not contribute to an impairment elsewhere in the watershed. Metals allocations are therefore developed for upstream reaches and tributaries that drain to impaired reaches. These TMDLs address wet- and dry-weather discharges of copper, lead, zinc and selenium and wet-weather discharges of cadmium. Impairments related to cadmium only occur during wet weather. Impairments related to selenium are confined to Reach 6 and its tributaries. Dry-weather impairments related to zinc only occur in Rio Hondo Reach 1. The aluminum listing was based on water quality objectives set to support the municipal water supply beneficial use (MUN). MUN is a conditional use in the Los Angeles River watershed. The United States Environmental Protection Agency (USEPA) has determined that TMDLs are not required for impairments of conditional uses.
Numeric Target *(Interpretation of the numeric water quality objective, used to calculate the waste load allocations)*	Numeric water quality targets are based on the numeric water quality criteria established by the California Toxics Rule (CTR). The targets are expressed in terms of total recoverable metals. There are separate targets for dry and wet weather because hardness values and flow conditions in the Los Angeles River and tributaries vary between dry and wet weather. The dry-weather targets apply to days when the maximum daily flow in the River is less than 500 cfs. The wet-weather targets apply to days when the maximum daily flow in the River is equal to or greater than 500 cfs. The dry-weather targets for copper and lead are based on chronic CTR criteria. The dry-weather targets for zinc are based on acute CTR criteria. Copper, lead and zinc targets are dependent on hardness to adjust for site specific conditions and conversion factors to convert between dissolved and total recoverable metals. Copper and lead targets are based on 50th percentile hardness values. Zinc targets are based on 10th percentile hardness values. Site-specific copper conversion factors are applied immediately downstream of the Tillman and LA-Glendale

Element	Key Findings and Regulatory Provisions

water reclamation plants (WRP). CTR default conversion factors are used for copper, lead, and zinc in all other cases. The dry-weather target for selenium is independent of hardness or conversion factors.

Dry-weather conversion factors:

	Default	Below Tillman WRP	Below LA-Glendale WRP
Copper	0.96	0.74	0.80
Lead	0.79		
Zinc	0.61		

Dry-weather numeric targets (µg total recoverable metals/L)

	Cu	Pb	Zn	Se
Reach 5, 6 and Bell Creek	30	19		5
Reach 4	26	10		
Reach 3 above LA-Glendale WRP and Verdugo	23	12		
Reach 3 below LA-Glendale WRP	26	12		
Burbank Western Channel (above WRP)	26	14		
Burbank Western Channel (below WRP)	19	9.1		
Reach 2 and Arroyo Seco	22	11		
Reach 1	23	12		
Compton Creek	19	8.9		
Rio Hondo Reach 1	13	5.0	131	
Monrovia Canyon		8.2		

The wet-weather targets for cadmium, copper, lead and zinc are based on acute CTR criteria and the 50th percentile hardness values for storm water collected at the Wardlow gage station. Conversion factors for copper, lead and zinc are based on a regression of dissolved metals values to total recoverable metals values collected at Wardlow. The CTR default conversion factor is applied to cadmium. The wet-weather target for selenium is independent of hardness or conversion factors.

Wet-weather conversion factors:

Cadmium	0.94
Copper	0.65
Lead	0.82
Zinc	0.61

Wet-weather numeric targets (µg total recoverable metals/L)

Cd	Cu	Pb	Zn	Se
3.1	17	62	159	5

Element	Key Findings and Regulatory Provisions
Source Analysis	There are significant differences in the sources of metals loadings during dry weather and wet weather. During dry weather, most of the metals loadings are in the dissolved form. The three major publicly owned treatment works (POTWs) that discharge to the river (Tillman WRP, LA-Glendale WRP, and Burbank WRP) constitute the majority of the flow and metals loadings during dry weather. The storm drains also contribute a large percentage of the loadings during dry weather because although their flows are typically low, concentrations of metals in urban runoff may be quite high. The remaining portion of the dry weather flow and metals loadings represents a combination of tributary flows, groundwater discharge, and flows from other permitted NPDES discharges within the watershed. During wet weather, most of the metals loadings are in the particulate form and are associated with wet-weather storm water flow. On an annual basis, storm water contributes about 40% of the cadmium loading, 80% of the copper loading, 95% of the lead loading and 90% of the zinc loading. This storm water flow is permitted through two municipal separate storm sewer system (MS4) permits, a separate Caltrans MS4 permit, a general construction storm water permit and a general industrial storm water permit. Nonpoint sources of metals may include tributaries that drain the open space areas of the watershed. Direct atmospheric deposition of metals on the river is also a small source. Indirect atmospheric deposition on the land surface that is washed off during storms is a larger source, which is accounted for in the estimates of storm water loadings. The sources of selenium appear to be related to natural levels of selenium in soils in the upper watershed. Separate studies are underway to evaluate whether selenium levels represent a "natural condition" for this watershed.
Loading Capacity	**Dry Weather** Dry-weather TMDLs are developed for the following pollutant waterbody combinations (allocations are developed for upstream reaches and tributaries to meet TMDLs in downstream reaches): • Copper for the Los Angeles River Reaches 1, 2, 3, 4, and 5, Burbank Channel, Compton Creek, Tujunga Wash, Rio Hondo Reach 1. • Lead for the Los Angeles River Reaches 1, 2, 3, 4, and 5, Burbank Channel, Rio Hondo Reach 1, Compton Creek, Monrovia Canyon Creek. • Zinc for Rio Hondo Reach 1. • Selenium for Reach 6, Aliso Creek, Dry Canyon Creek, McCoy Canyon Creek. For dry weather, loading capacities are equal to reach-specific numeric targets multiplied by reach-specific critical dry-weather flows.

Element	Key Findings and Regulatory Provisions
	Summing the critical flows for each reach and tributary, the critical flow for the entire river is 203 cfs, which is equal to the combined design flow of the three POTWs (169 cfs) plus the median flow from the storm drains and tributaries (34 cfs). The median storm drain and tributary flow is equal to the median flow at Wardlow (145 cfs) minus the existing median POTW flow (111 cfs). The dry-weather loading capacities for each impaired reach include the critical flows for upstream reaches. The dry-weather loading capacity for Reach 5 includes flows from Reach 6 and Bell Creek, the dry-weather loading capacity for Reach 3 includes flows from Verdugo Wash, and the dry-weather loading capacity for Reach 2 includes flows from Arroyo Seco. **Dry-weather loading capacity (total recoverable metals)** **Critical Flow (cfs) / Cu (kg/day) / Pb (kg/day) / Zn (kg/day)** LA River Reach 5: 8.74 / 0.65 / 0.39 LA River Reach 4: 129.13 / 8.1 / 3.2 LA River Reach 3: 39.14 / 2.3 / 1.01 LA River Reach 2: 4.44 / 0.16 / 0.084 LA River Reach 1: 2.58 / 0.14 / 0.075 Tujunga Wash: 0.15 / 0.007 / 0.0035 Burbank Channel: 17.3 / 0.80 / 0.39 Rio Hondo Reach 1: 0.50 / 0.015 / 0.0061 / 0.16 Compton Creek: 0.90 / 0.041 / 0.020 No dry-weather loading capacities are calculated for lead in Monrovia Canyon Creek or selenium in Reach 6 or its tributaries. Concentration-based allocations are assigned for these metals in these reaches. **Wet Weather** Wet-weather TMDLs are calculated for cadmium, copper, lead, and zinc in Reach 1. Allocations are developed for all upstream reaches and tributaries to meet these TMDLs. Wet-weather loading capacities are calculated by multiplying daily storm volumes by the wet-weather numeric target for each metal. The resulting curves identify the load allowance for a given flow. **Wet-weather loading capacity (total recoverable metals)** **Metal / Load Duration Curve (kg/day)** Cadmium: Daily storm volume x 3.1 µg/L Copper: Daily storm volume x 17 µg/L Lead: Daily storm volume x 62 µg/L Zinc: Daily storm volume x 159 µg/L
***Load Allocations** (for nonpoint sources)*	**Dry Weather** Dry-weather nonpoint source load allocations (LAs) for copper and lead apply to open space and direct atmospheric deposition to the river.

Element	Key Findings and Regulatory Provisions

Dry-weather open space load allocations are equal to the critical flow for the upper portion of tributaries that drain open space, multiplied by the numeric targets for these tributaries.

Open space dry-weather LAs (total recoverable metals)

	Critical Flow	Cu (kg/day)	Pb (kg/day)
Tujunga Wash	0.12	0.0056	0.0028
Arroyo Seco	0.33	0.018	0.009

Load allocations for direct atmospheric deposition to the entire river are obtained from previous studies (3 kg/year for copper, 2 kg/year for lead and 10 kg/year for zinc.) Loads are allocated to each reach and tributary based on their length. The ratio of the length of each river segment to the total length of the river is multiplied by the estimates of direct atmospheric loading to the entire river.

Direct air deposition dry-weather LAs (total recoverable metals)

	Cu (kg/day)	Pb (kg/day)	Zn(kg/day)
LA River Reach 6	$3.3x10^{-4}$	$2.2x10^{-4}$	
LA River Reach 5	$3.6x10^{-4}$	$2.4x10^{-4}$	
LA River Reach 4	$8.1x10^{-4}$	$5.4x10^{-4}$	
LA River Reach 3	$6.04x10^{-4}$	$4.03x10^{-4}$	
LA River Reach 2	$1.4\ x10^{-3}$	$9.5x10^{-4}$	
LA River Reach 1	$4.4x10^{-4}$	$2.96x10^{-4}$	
Bell Creek	$2.98x10^{-4}$	$1.99x10^{-4}$	
Tujunga Wash	$7.4x10^{-4}$	$4.9x10^{-4}$	
Verdugo Wash	$4.7x10^{-4}$	$3.2x10^{-4}$	
Burbank Channel	$7.1x10^{-4}$	$4.7x10^{-4}$	
Arroyo Seco	$7.3x10^{-4}$	$4.9x10^{-4}$	
Rio Hondo Reach 1	$6.4x10^{-4}$	$4.2x10^{-4}$	$2.1x10^{-3}$
Compton Creek	$6.5x10^{-4}$	$4.3x10^{-4}$	

A dry-weather concentration-based load allocation for lead equal to the dry-weather numeric target (8.2 µg/L) applies to Monrovia Canyon Creek. The load allocation is not assigned to a particular nonpoint source or group of nonpoint sources.

A dry-weather concentration-based load allocation for selenium equal to the dry-weather numeric target (5 µg/L) is assigned to Reach 6 and its tributaries. The load allocation is not assigned to a particular nonpoint source or group of nonpoint sources.

Wet Weather

Wet-weather load allocations for open space are equal to the percent metals loading from open space (predicted by the wet-weather model) multiplied by the total loading capacity, then by the ratio of open space

<table>
<tr><th>Element</th><th>Key Findings and Regulatory Provisions</th></tr>
<tr><td></td><td>located outside the storm drain system to the total open space area. There is no load allocation for cadmium because open space is not believed to be a source of the wet-weather cadmium impairment in Reach 1.

Wet-weather open space LAs (total recoverable metals)

Metal — Load Allocation (kg/day)
Copper — $2.6x10^{-10}$ µg /L/day x daily storm volume(L)
Lead — $2.4x10^{-10}$ µg /L/day x daily storm volume(L)
Zinc — $1.4x10^{-9}$ µg /L/day x daily storm volume(L)

Wet-weather load allocations for direct atmospheric deposition are equal to the percent area of the watershed comprised by surface water (0.2%) multiplied by the total loading capacity.

Wet-weather direct air deposition LAs (total recoverable metals)

Metal — Load Allocation (kg/day)
Cadmium — $6.2x10^{-10}$ µg /L/day x daily storm volume(L)
Copper — $3.4x10^{-10}$ µg /L/day x daily storm volume(L)
Lead — $1.2x10^{-10}$ µg /L/day x daily storm volume(L)
Zinc — $3.2x10^{-9}$ µg /L/day x daily storm volume(L)

A wet-weather concentration-based load allocation for selenium equal to the dry-weather numeric target (5 µg/L) is assigned to Reach 6 and its tributaries. The load allocation is not assigned to a particular nonpoint source or group of nonpoint sources.</td></tr>
<tr><td>Waste Load Allocations (for point sources)</td><td>Dry Weather

Dry-weather point source waste load allocations (WLAs) apply to the three POTWs (Tillman, Glendale, and Burbank). A grouped waste load allocation applies to the storm water permitees (Los Angeles County MS4, Long Beach MS4, Caltrans, General Industrial and General Construction), which is calculated by subtracting load allocations (and waste load allocations for reaches with POTWs) from the total loading capacity. Concentration-based waste load allocations are developed for other point sources in the watershed.

Mass- and concentration-based waste load allocations for Tillman, Los Angeles-Glendale and Burbank WRPs are developed to meet the dry-weather targets for copper and lead in Reach 4, Reach 3 and the Burbank Western Channel, respectively.</td></tr>
</table>

Element	Key Findings and Regulatory Provisions

POTW dry-weather WLAs (total recoverable metals):

	Cu	Pb
Tillman		
Concentration-based (µg/L)	26	10
Mass-based (kg/day)	7.8	3.03
Glendale		
Concentration-based (µg/L)	26	12
Mass-based (kg/day)	2.0	0.88
Burbank		
Concentration-based (µg/L)	19	9.1
Mass-based (kg/day)	0.64	0.31

Dry-weather waste load allocations for storm water are equal to storm drain flows (critical flows minus median POTW flows minus median open space flows) multiplied by reach-specific numeric targets, minus the contribution from direct air deposition.

Storm water dry-weather WLAs (total recoverable metals)

	Critical Flow (cfs)	Cu (kg/day)	Pb (kg/day)	Zn (kg/day)
LA River Reach 6	7.20	0.53	0.33	
LA River Reach 5	0.75	0.05	0.03	
LA River Reach 4	5.13	0.32	0.12	
LA River Reach 3	4.84	0.06	0.03	
LA River Reach 2	3.86	0.13	0.07	
LA River Reach 1	2.58	0.14	0.07	
Bell Creek	0.79	0.06	0.04	
Tujunga Wash	0.03	0.001	0.0002	
Burbank Channel	3.3	0.15	0.07	
Verdugo Wash	3.3	0.18	0.10	
Arroyo Seco	0.25	0.01	0.01	
Rio Hondo Reach 1	0.50	0.01	0.006	0.16
Compton Creek	0.90	0.04	0.02	

A zero waste load allocation is assigned to all industrial and construction storm water permittees during dry weather. The remaining waste load allocations are shared by the MS4 permittees and Caltrans.

Other NPDES Permits

Concentration-based dry-weather waste load allocations apply to the other NPDES permits* that discharge to the reaches and tributaries in the following table.

* "Other NPDES permits" refers to minor NPDES permits, general non-storm water NDPES permits, and major permits other than the Tillman, LA-Glendale, and Burbank POTWs.

Element	Key Findings and Regulatory Provisions

Other dry-weather WLAs (µg total recoverable metals/L)

	Cu	Pb	Zn	Se
Reach 5, 6 and Bell Creek	30	19		5
Reach 4	26	10		
Reach 3 above LA-Glendale WRP and Verdugo	23	12		
Reach 3 below LA-Glendale WRP	26	12		
Burbank Western Channel(above WRP)	26	14		
Burbank Western Channel (below WRP)	19	9.1		
Reach 2 and Arroyo Seco	22	11		
Reach 1	23	12		
Compton Creek	19	8.9		
Rio Hondo Reach 1	13	5.0	131	

Wet Weather

During wet-weather, POTW allocations are based on dry-weather in-stream numeric targets because the POTWs exert the greatest influence over in-stream water quality during dry weather. During wet weather, the concentration-based dry-weather waste load allocations apply but the mass-based dry-weather allocations do not apply when influent flows exceed the design capacity of the treatment plants. Additionally, the POTWs are assigned reach-specific allocations for cadmium and zinc based on dry weather targets to meet the wet-weather TMDLs in Reach 1.

POTW wet-weather WLAs (total recoverable metals):

	Cd	Cu	Pb	Zn
Tillman				
Concentration-based (µg/L)	4.7	26	10	212
Mass-based (kg/day)	1.4	7.8	3.03	64
Glendale				
Concentration-based (µg/L)	5.3	26	12	253
Mass-based (kg/day)	0.40	2.0	0.88	19
Burbank				
Concentration-based (µg/L)	4.5	19	9.1	212
Mass-based (kg/day)	0.15	0.64	0.31	7.3

Element	Key Findings and Regulatory Provisions

Wet-weather waste load allocations for the grouped storm water permittees are equal to the total loading capacity minus the load allocations for open space and direct air deposition and the waste load allocations for the POTWs. Wet-weather waste load allocations for the grouped storm water permittees apply to all reaches and tributaries.

Storm water wet-weather WLAs (total recoverable metals):

Metal	Waste Load Allocation (kg/day)
Cadmium	3.1×10^{-9} x daily volume(L) – 1.95
Copper	1.7×10^{-8} x daily volume (L) – 10
Lead	6.2×10^{-8} x daily volume (L) – 4.2
Zinc	1.6×10^{-7} x daily volume (L) – 90

The combined storm water waste load allocation is apportioned between the different storm water categories by their percent area of the portion of the watershed served by storm drains.

MS4 wet-weather WLAs (total recoverable metals):

Metal	Waste Load Allocation (kg/day)
Cadmium	2.8×10^{-9} x daily volume(L) – 1.8
Copper	1.5×10^{-8} x daily volume (L) – 9.5
Lead	5.6×10^{-8} x daily volume (L) – 3.85
Zinc	1.4×10^{-7} x daily volume (L) – 83

Caltrans wet-weather WLAs (total recoverable metals):

Metal	Waste Load Allocation (kg/day)
Cadmium	5.3×10^{-11} x daily volume(L) – 0.03
Copper	2.9×10^{-10} x daily volume (L) – 0.2
Lead	1.06×10^{-9} x daily volume (L) – 0.07
Zinc	2.7×10^{-9} x daily volume (L) – 1.6

General Industrial wet-weather WLAs (total recoverable metals):

Metal	Waste Load Allocation (kg/day)
Cadmium	1.6×10^{-10} x daily volume(L) – 0.11
Copper	8.8×10^{-10} x daily volume (L) – 0.5
Lead	3.3×10^{-9} x daily volume (L) – 0.22
Zinc	8.3×10^{-9} x daily volume (L) – 4.8

General Construction wet-weather WLAs (total recoverable metals):

Metal	Waste Load Allocation (kg/day)
Cadmium	5.9×10^{-11} x daily volume(L) – 0.04
Copper	3.2×10^{-10} x daily volume (L) – 0.2
Lead	1.2×10^{-9} x daily volume (L) – 0.08
Zinc	3.01×10^{-9} x daily volume (L) – 4.8

Each storm water permittee under the general industrial and construction storm water permits will receive individual waste load allocations per acre based on the total acres of their facility.

<table>
<tr><th>Element</th><th>Key Findings and Regulatory Provisions</th></tr>
<tr><td></td><td>
Individual General Construction or Industrial Permittees WLAs (total recoverable metals):
<table>
<tr><th>Metal</th><th>Waste Load Allocation (g/day/acre)</th></tr>
<tr><td>Cadmium</td><td>$7.6x10^{-12}$ x daily volume(L) – $4.8x10^{-6}$</td></tr>
<tr><td>Copper</td><td>$4.2x10^{-11}$ x daily volume (L) – $2.6x10^{-5}$</td></tr>
<tr><td>Lead</td><td>$1.5x10^{-10}$ x daily volume (L) – $1.04x10^{-5}$</td></tr>
<tr><td>Zinc</td><td>$3.9x10^{-10}$ x daily volume (L) – $2.2x10^{-4}$</td></tr>
</table>
Other NPDES Permits
Concentration-based wet-weather waste load allocations apply to the other NPDES permits* that discharge to all reaches of the Los Angeles River and its tributaries.
Wet-weather WLAs for other permits (total recoverable metals)
<table>
<tr><th>Cadmium (µg /L)</th><th>Copper (µg /L)</th><th>Lead (µg /L)</th><th>Zinc (µg /L)</th></tr>
<tr><td>3.1</td><td>17</td><td>62</td><td>159</td></tr>
</table>
* "Other NPDES permits" refers to minor NPDES permits, general non-storm water NDPES permits, and major permits other than the Tillman, LA-Glendale, and Burbank POTWs.
</td></tr>
<tr><td>Margin of Safety</td><td>There is an implicit margin of safety that stems from the use of conservative values for the translation from total recoverable to the dissolved fraction during the dry and wet periods. In addition, the TMDL includes a margin of safety by evaluating wet-weather conditions separately from dry-weather conditions, which is in effect, assigning allocations for two distinct critical conditions. Furthermore, the use of the wet-weather model to calculate load allocations for open space can be applied to the margin of safety because it tends to overestimate loads from open spaces, thus reducing the available waste load allocations to the permitted discharges.</td></tr>
<tr><td>Implementation</td><td>The regulatory mechanisms used to implement the TMDL will include the Los Angeles County Municipal Storm Water NPDES Permit (MS4), the City of Long Beach MS4, the Caltrans storm water permit, major NPDES permits, minor NPDES permits, general NPDES permits, general industrial storm water NPDES permits, and general construction storm water NPDES permits. Nonpoint sources will be regulated through the authority contained in sections 13263 and 13269 of the Water Code, in conformance with the State Water Resources Control Board's Nonpoint Source Implementation and Enforcement Policy (May 2004). Each NPDES permit assigned a WLA shall be reopened or amended at reissuance, in accordance with applicable laws, to incorporate the applicable WLAs as a permit requirement.

The Regional Board shall reconsider this TMDL in five years after the effective date of the TMDL based on additional data obtained from special studies. Table 7-13-2 presents the implementation schedule for the responsible permittees.</td></tr>
</table>

Element	Key Findings and Regulatory Provisions
	Non storm water NPDES permits (including POTWs, other major, minor, and general permits): Permit writers may translate applicable waste load allocations into effluent limits for the major, minor and general NPDES permits by applying the effluent limitation procedures in Section 1.4 of the State Water Resources Control Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2000) or other applicable engineering practices authorized under federal regulations. Compliance schedules may be established in individual NPDES permits, allowing up to 5 years within a permit cycle to achieve compliance. Compliance schedules may not be established in general NPDES permits. A discharger that can not comply immediately with effluent limitations specified to implement waste load allocations will be required to apply for an individual permit in order to demonstrate the need for a compliance schedule. If a POTW demonstrates that advanced treatment (necessitating long design and construction timeframes) will be required to meet final waste load allocations, the Regional Board will consider extending the implementation schedule to allow the POTW up to 10 years from the effective date of the TMDL to achieve compliance with the final WLAs. Permittees that hold individual NPDES permits and solely discharge storm water may be allowed (at Regional Board discretion) compliance schedules up to 10 years from the effective date of the TMDL to achieve compliance with final WLAs. **General industrial storm water permits:** The Regional Board will develop a watershed-specific general industrial storm water permit to incorporate waste load allocations. <u>Dry-weather implementation</u> Non-storm water flows authorized by Order No. 97-03 DWQ, or any successor order, are exempt from the dry-weather waste load allocation equal to zero. Instead, these authorized non-storm water flows shall meet the reach-specific concentration-based waste load allocations assigned to the "other NPDES permits". The dry-weather waste load allocation equal to zero applies to unauthorized non-storm water flows, which are prohibited by Order No. 97-03 DWQ. It is anticipated that the dry-weather waste load allocations will be implemented by requiring improved best management practices (BMPs) to eliminate the discharge of non-storm water flows. However, permit writers must provide adequate justification and documentation to demonstrate that specified BMPs are expected to result in attainment of the numeric waste load allocations.

Element	Key Findings and Regulatory Provisions
	Wet-weather implementation General industrial storm water permittees are allowed interim wet-weather concentration-based waste load allocations based on benchmarks contained in EPA's Storm Water Multi-sector General Permit for Industrial Activities. The interim waste load allocations apply to all industry sectors and apply for a period not to exceed ten years from the effective date of the TMDL. **Interim wet-weather WLAs for general industrial storm water permittees (total recoverable metals)*** **Cd (µg/L)** 15.9 **Cu(µg/L)** 63.6 **Pb(µg/L)** 81.6 **Zn(µg/L)** 117 *Based on USEPA benchmarks for industrial storm water sector In the first five years from the effective date of the TMDL, interim waste load allocations will not be interpreted as enforceable permit conditions. If monitoring demonstrates that interim waste load allocations are being exceeded, the permittee shall evaluate existing and potential BMPs, including structural BMPs, and implement any necessary BMP improvements. It is anticipated that monitoring results and any necessary BMP improvements would occur as part of an annual reporting process. After five years from the effective date of the TMDL, interim waste load allocations shall be translated into enforceable permit conditions. Compliance with permit conditions may be demonstrated through the installation, maintenance, and monitoring of Regional Board-approved BMPs. If this method of compliance is chosen, permit writers must provide adequate justification and documentation to demonstrate that BMPs are expected to result in attainment of interim waste load allocations. The general industrial storm water permits shall achieve final wet-weather waste load allocations no later than 10 years from the effective date of the TMDL, which shall be expressed as NPDES water quality-based effluent limitations. Effluent limitations may be expressed as permit conditions, such as the installation, maintenance, and monitoring of Regional Board-approved BMPs if adequate justification and documentation demonstrate that BMPs are expected to result in attainment of waste load allocations. **General construction storm water permits:** Waste load allocations will be incorporated into the State Board general permit upon renewal or into a watershed-specific general permit developed by the Regional Board. Dry-weather implementation Non-storm water flows authorized by the General Permit for Storm Water Discharges Associated with Construction Activity (Water Quality Order No. 99-08 DWQ), or any successor order, are exempt from the dry-weather waste load allocation equal to zero as long as they

Element	Key Findings and Regulatory Provisions
	comply with the provisions of sections C.3.and A.9 of the Order No. 99-08 DWQ, which state that these authorized non-storm discharges shall be (1) infeasible to eliminate (2) comply with BMPs as described in the Storm Water Pollution Prevention Plan prepared by the permittee, and (3) not cause or contribute to a violation of water quality standards, or comparable provisions in any successor order. Unauthorized non-storm water flows are already prohibited by Order No. 99-08 DWQ. Wet-weather implementation Within seven years of the effective date of the TMDL, the construction industry will submit the results of BMP effectiveness studies to determine BMPs that will achieve compliance with the final waste load allocations assigned to construction storm water permittees. Regional Board staff will bring the recommended BMPs before the Regional Board for consideration within eight years of the effective date of the TMDL. General construction storm water permittees will be considered in compliance with final waste load allocations if they implement these Regional Board approved BMPs. All permittees must implement the approved BMPs within nine years of the effective date of the TMDL. If no effectiveness studies are conducted and no BMPs are approved by the Regional Board within eight years of the effective date of the TMDL, each general construction storm water permit holder will be subject to site-specific BMPs and monitoring requirements to demonstrate compliance with final waste load allocations. **MS4 and Caltrans permits** Applicable CTR limits are being met most of the time during dry weather, with episodic exceedances. Due to the expense of obtaining accurate flow measurements required for calculating loads, concentration-based permit limits may apply during dry weather. These concentration-based limits would be equal to dry-weather reach-specific numeric targets. Each municipality and permittee will be required to meet the storm water waste load allocations shared by the two MS4s and Caltrans permittees at the designated TMDL effectiveness monitoring points. A phased implementation approach, using a combination of non-structural and structural BMPs may be used to achieve compliance with the waste load allocations. The administrative record and the fact sheets for the MS4 and Caltrans storm water permits must provide reasonable assurance that the BMPs selected will be sufficient to implement the waste load allocations. The implementation schedule for the MS4 and Caltrans permittees consists of a phased approach. The watershed is divided into five jurisdictional groups based on the subwatersheds of the tributaries that drain to each reach of the river, as presented in Table 7-13-3. Each

Element	Key Findings and Regulatory Provisions
	jurisdictional group shall achieve compliance in prescribed percentages of its subwatershed(s), with total compliance to be achieved within 22 years. Jurisdictional groups can be reorganized or subdivided upon approval by the Executive Officer.
Seasonal Variations and Critical Conditions	Seasonal variations are addressed by developing separate waste load allocations for dry weather and wet weather. For dry weather, critical flows for each reach are established from the long-term flow records (1988-2000) generated by stream gages located throughout the watershed and in selected reaches. The median dry-weather urban runoff plus the combined design capacity of the three major POTWs is selected as the critical flow since most of the flow is from effluent which results in a relatively stable dry-weather flow condition. In areas where there are no flow records, an area-weighted approach is used to assign flows to these reaches. Wet-weather allocations are developed using the load-duration curve concept. The total wet-weather waste load allocation for wet weather varies by storm. Given this variability in storm water flows, no justification was found for selecting a particular sized storm as the critical condition.
Compliance Monitoring and Special Studies	Effective monitoring will be necessary to assess the condition of the Los Angeles River and its tributaries and to assess the on-going effectiveness of efforts by dischargers to reduce metals loading to the Los Angeles River. Special studies may also be appropriate to provide further information about new data, new or alternative sources, and revised scientific assumptions. Below the Regional Board identifies the various goals of monitoring efforts and studies. The programs, reports, and studies will be developed in response to subsequent orders issued by the Executive Officer. **Ambient Monitoring** An ambient monitoring program is necessary to assess water quality throughout the Los Angeles River and its tributaries and the progress being made to remove the metals impairments. The MS4 and Caltrans storm water NPDES permittees in each jurisdictional group are jointly responsible for implementing the ambient monitoring program. The responsible agencies shall sample for total recoverable metals, dissolved metals, including cadmium and zinc, and hardness once per month at each ambient monitoring location at least until the TMDL is re-considered at year 5. The reported detection limits shall be below the hardness adjusted CTR criteria. Eight ambient monitoring points currently exist in the Los Angeles River and its tributaries as part of the City of Los Angeles Watershed Monitoring Program. These monitoring points could be used to assess water quality.

Element	Key Findings and Regulatory Provisions
	Ambient Monitoring Points — **Reaches and Tributaries** White Oak Avenue — LA River 6, Aliso Creek, McCoy Creek, Bell Creek Sepulveda Boulevard — LA River 5, Bull Creek Tujunga Avenue — LA River 4, Tujunga Wash Colorado Boulevard — LA River 3, Burbank Western Channel, Verdugo Wash Figueroa Street — LA River 3, Arroyo Seco Washington Boulevard — LA River 2 Rosecrans Avenue — LA River 2, Rio Hondo (gage just above Rio Hondo) Willow Street — LA River 1, Compton Creek (gage at Wardlow) **TMDL Effectiveness Monitoring** The MS4 and Caltrans storm water NPDES permittees in each jurisdictional group are jointly responsible for assessing progress in reducing pollutant loads to achieve the TMDL. Each jurisdictional group is required to submit for approval by the Executive Officer a coordinated monitoring plan that will demonstrate the effectiveness of the phased implementation schedule for this TMDL (See Table 7-13.2), which requires attainment of the applicable waste load allocations in prescribed percentages of each subwatershed over a 22-year period. The monitoring locations specified for the ambient monitoring program may be used as effectiveness monitoring locations. The MS4 and Caltrans storm water NPDES permittees will be found to be effectively meeting dry-weather waste load allocations if the in-stream pollutant concentration or load at the first downstream monitoring location is equal to or less than the corresponding concentration- or load-based waste load allocation. Alternatively, effectiveness of the TMDL may be assessed at the storm drain outlet based on the waste load allocation for the receiving water. For storm drains that discharge to other storm drains, the waste load allocation will be based on the waste load allocation for the ultimate receiving water for that storm drain system. The MS4 and Caltrans storm water NPDES permittees will be found to be effectively meeting wet-weather waste load allocations if the loading at the downstream monitoring location is equal to or less then the wet-weather waste load allocation. The general industrial storm water permit shall contain a model monitoring and reporting program to evaluate BMP effectiveness. A permittee enrolled under the general permit shall have the choice of conducting individual monitoring based on the model program or participating in a group monitoring effort. MS4 permittees are

Element	Key Findings and Regulatory Provisions
	encouraged to take the lead in group monitoring efforts for industrial facilities within their jurisdiction because compliance with waste load allocations by these facilities will in many cases translate to reductions in metals loads to the MS4 system. The Tillman, LA-Glendale, and Burbank POTWs, and the remaining permitted discharges in the watershed will have effluent monitoring requirements to ensure compliance with waste load allocations. **Special Studies** The implementation schedule (see Table 7-13.2) allows time for special studies that may serve to refine the estimate of loading capacity, waste load and/or load allocations, and other studies that may serve to optimize implementation efforts. The Regional Board will re-consider the TMDL in the fifth year after the effective date in light of the findings of these studies. Studies may include: • Refined flow estimates for the Los Angeles River mainstem and tributaries where there presently are no flow gages and for improved gaging of low-flow conditions. • Water quality measurements, including a better assessment of hardness, water chemistry data (e.g., total suspended solids and organic carbon) that may refine the use of metals partitioning coefficients. • Effects studies designed to evaluate site-specific toxic effects of metals on the Los Angeles River and its tributaries. • Source studies designed to characterize loadings from background or natural sources • Review of water quality modeling assumptions including the relationship between metals and total suspended solids as expressed in the potency factors and buildup and washoff and transport coefficients. • Evaluation of aerial deposition and sources of aerial deposition. • POTWs that are unable to demonstrate compliance with final waste load allocations must conduct source reduction audits within two years of the effective date of the TMDL. • POTWs that will be requesting the Regional Board to extend their implementation schedule to allow for the installation of advanced treatment must prepare work plans, with time schedules to allow for the installation advanced treatment. The work plan must be submitted within four years from the effective date of the TMDL.

Table 7-13.2 Los Angeles River and Tributaries Metals TMDL: Implementation Schedule

Date	Action
Effective date of TMDL	Regional Board permit writers shall incorporate waste load allocations into NPDES permits. Waste load allocations will be implemented through NPDES permit limits in accordance with the implementation schedule contained herein, at the time of permit issuance, renewal, or re-opener.
4 years after effective date of the TMDL	Responsible jurisdictions and agencies shall provide to the Regional Board results of the special studies. POTWs that will be requesting the Regional Board to extend their implementation schedule to allow for the installation of advanced treatment must submit work plans.
5 years after effective date of the TMDLs	The Regional Board shall reconsider this TMDL to re-evaluate the waste load allocations and the implementation schedule.
NON-STORM WATER NPDES PERMITS (INCLUDING POTWS, OTHER MAJOR, MINOR, AND GENERAL PERMITS)	
Upon permit issuance, renewal, or re-opener	The non-storm water NPDES permits shall achieve waste load allocations, which shall be expressed as NPDES water quality-based effluent limitations specified in accordance with federal regulations and state policy on water quality control. Compliance schedules may allow up to 5 years in individual NPDES permits to meet permit requirements. Compliance schedules may not be established in general NPDES permits. If a POTW demonstrates that advanced treatment will be required to meet final waste load allocations, the Regional Board will consider extending the implementation schedule to allow the POTW up to 10 years from the effective date of the TMDL to achieve compliance with the final WLAs. Permittees that hold individual NPDES permits and solely discharge storm water may be allowed (at Regional Board discretion) compliance schedules up to 10 years from the effective date of the TMDL to achieve compliance with final WLAs.
GENERAL INDUSTRIAL STORM WATER PERMITS	
Upon permit issuance, renewal, or re-opener	The general industrial storm water permitees shall achieve dry-weather waste load allocations, which shall be expressed as NPDES water quality-based effluent limitations specified in accordance with federal regulations and state policy on water quality control. Effluent limitations may be expressed as permit conditions, such as the installation, maintenance, and monitoring of Regional Board-approved BMPs. Permittees shall begin to install and test BMPs to meet the interim wet-weather WLAs. BMP effectiveness monitoring will be implemented to determine progress in achieving interim wet-weather waste load allocations.

Date	Action
5 years after effective date of the TMDLs	The general industrial storm water permits shall achieve interim wet-weather waste load allocations, which shall be expressed as NPDES water quality-based effluent limitations. Effluent limitations may be expressed as permit conditions, such as the installation, maintenance, and monitoring of Regional Board-approved BMPs. Permittees shall begin an iterative BMP process including BMP effectiveness monitoring to achieve compliance with final waste load allocations.
10 years after the effective date of TMDL	The general industrial storm water permits shall achieve final wet-weather waste load allocations, which shall be expressed as NPDES water quality-based effluent limitations. Effluent limitations may be expressed as permit conditions, such as the installation, maintenance, and monitoring of Regional Board-approved BMPs.
GENERAL CONSTRUCTION STORM WATER PERMITS	
Upon permit issuance, renewal, or re-opener	Non-storm water flows not authorized by Order No. 99-08 DWQ, or any successor order, shall achieve dry-weather waste load allocations of zero. Waste load allocations shall be expressed as NPDES water quality-based effluent limitations specified in accordance with federal regulations and state policy on water quality control. Effluent limitations may be expressed as permit conditions, such as the installation, maintenance, and monitoring of Regional Board-approved BMPs.
Seven years from the effective date of the TMDL	The construction industry will submit the results of wet-weather BMP effectiveness studies to the Regional Board for consideration. In the event that no effectiveness studies are conducted and no BMPs are approved, permittees shall be subject to site-specific BMPs and monitoring to demonstrate BMP effectiveness.
Eight years from the effective date of the TMDL	The Regional Board will consider results of the wet-weather BMP effectiveness studies and consider approval of BMPs no later than eight years from the effective date of the TMDL.
Nine years from the effective date of the TMDL	All general construction storm water permittees shall implement Regional Board-approved BMPs.
MS4 AND CALTRANS STORM WATER PERMITS	
15 months after the effective date of the TMDL	In response to an order issued by the Executive Officer, each jurisdictional group must submit a coordinated monitoring plan, to be approved by the Executive Officer, which includes both TMDL effectiveness monitoring and ambient monitoring. Once the coordinated monitoring plan is approved by the Executive Officer ambient monitoring shall commence.

Date	Action
48 months after effective date of TMDL (Draft Report) 54 months after effective date of TMDL (Final Report)	Each jurisdictional group shall provide a written report to the Regional Board outlining the how the subwatersheds within the jurisdictional group will achieve compliance with the waste load allocations. The report shall include implementation methods, an implementation schedule, proposed milestones, and any applicable revisions to the TMDL effectiveness monitoring plan.
6 years after effective date of the TMDL	Each jurisdictional group shall demonstrate that 50% of the group's total drainage area served by the storm drain system is effectively meeting the dry-weather waste load allocations and 25% of the group's total drainage area served by the storm drain system is effectively meeting the wet-weather waste load allocations.
14 years after effective date of the TMDL	Each jurisdictional group shall demonstrate that 75% of the group's total drainage area served by the storm drain system is effectively meeting the dry-weather WLAs.
18 years after effective date of the TMDL	Each jurisdictional group shall demonstrate that 100% of the group's total drainage area served by the storm drain system is effectively meeting the dry-weather WLAs and 50% of the group's total drainage area served by the storm drain system is effectively meeting the wet-weather WLAs.
22 years after effective date of the TMDL	Each jurisdictional group shall demonstrate that 100% of the group's total drainage area served by the storm drain system is effectively meeting both the dry-weather and wet-weather WLAs.

Table 7-13.3 Los Angeles River and Tributaries Metals TMDL: Jurisdictional Groups

Jurisdictional Group	Responsible Jurisdictions & Agencies		Subwatershed(s)
1	Carson County of Los Angeles City of Los Angeles Compton Huntington Park Long Beach Lynwood Signal Hill Southgate Vernon		Los Angeles River Reach 1 and Compton Creek
2	Alhambra Arcadia Bell Bellflower Bell Gardens Bradbury Carson Commerce Compton County of Los Angeles Cudahy Downey Duarte El Monte Glendale Huntington Park Irwindale La Canada Flintridge	Long Beach City of Los Angeles Lynwood Maywood Monrovia Montebello Monterey Park Paramount Pasadena Pico Rivera Rosemead San Gabriel San Marino Sierra Madre South El Monte South Pasadena Southgate Temple City Vernon	Los Angeles River Reach 2, Rio Hondo, Arroyo Seco, and all contributing sub watersheds
3	City of Los Angeles County of Los Angeles Burbank Glendale La Canada Flintridge Pasadena		Los Angeles River Reach 3, Verdugo Wash, Burbank Western Channel
4-5	Burbank Glendale City of Los Angeles County of Los Angeles San Fernando		Los Angeles River Reach 4, Reach 5, Tujunga Wash, and all contributing subwatersheds
6	Calabasas City of Los Angeles County of Los Angeles Hidden Hills		Los Angeles River Reach 6, Bell Creek, and all contributing subwatersheds